ingenuity of a modern shipbuilder to have constructed a boat. These simple, desert people, however, through centuries of struggle for life in their desolate realm had learned to use every natural material available to them, however laborious the tasks and inefficient the products. The carrizal reed, *Phragmites communis*, grows about the few permanent water holes of Seriland, and from countless numbers of these slender, buoyant canes they built their watercraft. The reeds were stripped of leaves and gathered in long bundles, bound together and gradually augmented by more and more interlaced canes until a bundle 18 to 30 feet long and 1½ feet in diameter, tapering at both ends, was made. Three of these were then bound together with cords of fiber or human hair, making a maneuverable one or two man raft, easily transported to the shores.

The mesquite tree, *Prosopis juliflora*, provided fiber for cords. The flexible outer tissues of the roots were stripped off, soaked and progressively pounded, split and worked between hand and mouth until very slender, fibrous threads were obtained which were then twisted into cords. In some cases a coarse, rough fabric was woven from these fibers, but most garments were made of pelican skins. The strips of workable mesquite root or sometimes yucca fiber were also used in making doughnut-shaped head pads which aided in balancing the capacitous earthen water jars as they were carried on the heads of the women over rough and stony trails from water hole to camp site.

While occupying the turtle fishing camps on El Infiernillo during the good season, vegetable supplements to the fishy diet were few. Every nourishing seed or woody fruit yielded by the desert was carefully gathered; even the tiny seeds of the sea grass, *Ruppia*, were sorted from beach drift and made into meal. Never did the Seris learn to cultivate any crop or domesticate any animals other than the half wild coyote dogs that lived in mutual toleration with them. Even had they done so, their success in the barren, waterless land would have been small.

Sterile as is the Seri's hinterland, for a time each summer the thorny plants with which it is so profusely stocked ripen an abundant crop of fruit. The cacti in particular yield a wonderful harvest of luscious and succulent fruits, and toward this fortuitous supply the Seris were accustomed to move in June and July. The foothills of Sierra Seri on the mainland are adorned with great numbers of giant cacti, *Pachycereus Pringlei*, *Carnegiea gigantea* and *Lemaireocereus Thurberi* from which the luscious pitahayas were readily knocked down when ripe. The Indians wandered into the cactus forest and after a simple ritual marking the beginning of the feast, proceeded to gorge themselves for weeks on the succulent fruit until waning supply and cloying appetite drove them back to more severe food-getting activity by the sea. They did not customarily find it necessary to leave the cactus forest, however, as soon as the supply of fruits was no longer sufficient, for by the time the fruiting season was ended they had provided themselves with a second harvest. The pitahayas, gorged in such tremendous quantity throughout the season, were very imperfectly digested; the miriads of hard seeds, particularly, passed through the system unchanged and with the preservation of these in mind the Indians carefully collected with the aid of large sea shells all such seedy discharges and let them dry in the desert sun. Thus, as the supply of fresh fruit faded they proceeded to the use of this hoard

[TEXT CONTINUES ON P. 136--Analyst]

7: Marroquin E-5 (1955) 1957 NU3. Seri NU31

POPULATION ABLE TO WORK
(between 11 and 65 years)

Men, 74 or 69% of the masculine population. 464
Women, 76 or 70% of the feminine population. 162
462

We can add that, at least as far as the male population is concerned, the figure of 69% with a potential work capacity is equivalent, in general terms, to the percentage of the population economically active, since one of the singular characteristics of the Seri population is the fact that they constitute a community fully occupied: all the men of working age have a place set aside in the fishing activities; this is an advantageous position for increasing economic development of the tribe. With relation to the women the situation is not the same, since the majority of girls of marriageable age carry on very few productive activities; it could be said that economic responsibility begins with matrimony. [226]

If it is true that all the Seri men are fishermen, it is also true that there is the beginning of some specialization of jobs, which are carried on complementing or as an accessory to the principal occupation. Thus we have among the men: 463 462 162

Carpenters, constructors of *piraguas* (a kind of canoe)	6
Medicine men	14
Farmers	2

And among the women:

Seamstresses	4
Farmers	1
Midwives	22

The relatively high number of medicine men and midwives should not be surprising; Seri popular medicine is very well known and depends principally on magical propitiation and since the magic powers are acquired in a variety of ways, including dreams, and the healing rites are, on the other hand, very simple, it is not strange that medicine men should abound. As for the midwives, it can be said that every woman who has undergone the experience of childbirth feels herself able to help at a birth; nevertheless, it is said that the more experienced women are those best able to take care of those giving birth. 755 756 844

Problems which should be attended to

In addition to the sanitary problem mentioned above, mention should also be made of the problem of agriculture, linked with the necessity for supplying food to an Indian population which since economically it depends principally on fishing, needs to complement its diet with agricultural products to achieve a better one. In close relation 185 [262] [241] [423]

9:Malkin E-5 (1953-1955)1962 NU31 Seri NU31

II

OUTLINE OF SERI CULTURE

161 At the moment their number should have increased again, after a disastrous epidemic in the 164 spring of 1955.

Biological Background

142 The Seris are somewhat atypical among the peoples of the general area in that they represent a very slender, sinewy, tall type. This is true of both men and women. This physical type in general is apt to be associated with the desert habitat and the Seris answer the requirements very well. As shall be seen, their economy also repre-433 sents characteristic adaptation to the desert conditions of pre-agricultural people.

Economy

The Seris readily fell into the category of the pre-agricultural hunters and gatherers with one variant, dependence on the produce of the sea, whether marine turtles, fish or littoral invertebrates.

● [241] Here the Seri provide another exception for the region. They are the only group that never had any agriculture. McGee has pointed out their lack of agricultural sense and this has also been mentioned by Kroeber and by incidental Mexican visitors. Of late years, some efforts have been made by the Mexican government and the American Friends' Service Committee to persuade them [648] toward agriculture, but to no avail. The Seris [464] occasionally hire out to the surrounding Mexican or American rancher-farmers but grow restless after a few days of cotton picking and retire, with their advanced pay lost to the employer. On the other hand, efforts to teach them related practices, well digging for example, also failed to interest them. To this day they remain much in the original pattern of economy.

262 McGee (1898:214) who had a chance to observe 114 them from the first hand and who also had access to valuable information from the outsiders gives the following figures for their diet:

land game, large and small (incl. stolen stock)	21%
waterfowl and eggs, incl. pelican	13
sea-turtles	25
fish	15
shellfish	10
cactus fruit	9
other plants	6
miscellaneous	2
total animal 84%	marine 65%

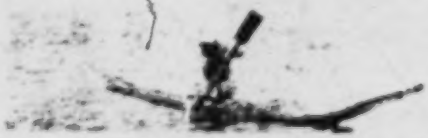
Kroeber (1930:20) questions these figures and thinks that shellfish represents greater percentage than McGee indicated. He also thinks the use of turtles had been exaggerated. He figures the dependence on the animal diet as 75% and on marine 60% but he suspects that these figures are too high for a band with ready access to countless cacti and mesquite.

[P6B]

123 As a concrete result of that first trip to Tiburon, I secured a
115 *balsa* (boat) made of *carrizo* canes lashed together with native fibre,
581 which *balsa* Mr. Heye said it was the finest one in North America.

[226] This *balsa* was given to me without hesitation, although it furnished one or two families with sea food.

115 I wish to pay tribute to Senor Roberto Thomson who has been my constant companion, friend, guide and interpreter during the past twenty years, on all my trips to Tiburon and various parts of Mexico. I found him absolutely dependable, using excellent judgment in critical situations. He was honest, fair, intelligent, looking out constantly for my safety and comfort always, enduring hardships cheerfully. A better all-round out-door man I have never seen equaled. In short, he is a real *hombre*, and my *simpatico*.



13 Tiburon, or *Shark Island*, long noted for its evil reputation as
181 the home of the most savage and treacherous Indians of North America,
193 lies in latitude 29° north and 112°30' west longitude, in the Gulf of California. It is shaped like a parallelogram about thirty-five miles long and eighteen to twenty miles wide, and lies parallel to the coast of Sonora, Mexico, of which, no doubt, at some remote period, it once formed a part.

It is separated from the mainland, for the most part, by a strait
[127] called *El Infernillo*, or The Little Hell, through which the rising tides pour a resistless flood. It is a desert island and supports a desert arboreal vegetation which includes several varieties of the cactus family and the *mesquite, palo verde, palo fierro, torote, palo blanco, ocotillo* and others. The giant *saguaro, zarbuzo* and *pitahalla (pit-a-haya)* cactus are found here also.

Two desert ranges run lengthwise of the Island, which, on its westward or windward side, terminate in sea-worn cliffs against whose ramparts dash the heavy breakers of the Gulf, and on its eastern side, by long alluvial aprons from the foot of the mountains, sloping gently down to the lovely shell-strewn beaches. From this side the foot of the mountains lies from two to five miles distant. On this, the leeward side of Tiburon, the sea is much calmer, and often, in the early morning, it is as smooth and placid as a lake, reflecting each rosy, lavender and purple tint of the rugged Sierra Seri along the Sonoran coast, as in a mirror. The exquisite loveliness of marvelous sunrises over the pure limpid waters of the *Estrecho Infernillo* is mystical.

134 The soil is loose and sandy, unsuitable for cultivation, and im-
241 possible for producing domestic crops of any
142 Kind.

123 the flesh attached. This we roasted, or broiled, by standing it on
262 edge against two stakes in front of the fire. The breast was white and tender, somewhat like roast pig, but much more delicious.

242 The Seris cut off the great flippers, dug out the entrails, and
252 whenever there was a crack in the crowd of men, women and children, there was a dog lapping the blood and chewing a shred of meat before being driven off. Men, women and children tore off pieces of the tender
[251] meat and ate it raw. The blood which gathered in the hollow of the shell was baled out and saved in an olla.

A woman took out the coils of entrails, ripped them open with her finger, squeezed out the half-digested sea grass, which resembled closely-packed boiled greens, and rinsed them in the sea. The head
[251] was skillfully disjointed, and with flippers, entrails and liver, put up on the brush roof away from the sand and dogs.

Then began the feast; half the turtle being devoured immediately.
[264] To see Blanco, which name fits neither his complexion or character, gnaw the bone and tear away the raw flesh of a turtle flipper with his strong white teeth and cruel mouth, would not require much imagination to substitute the shin bone of a human being.

All parts of the sea turtle are utilized except the bones and portions of the head. The white, flexible under-shell is roasted and eaten, but how they can masticate and digest it is a mystery. I tried it and gave it up, as did all our party. It might have been a Goodyear tire, for all the impression we made on it, but even the Seri children
237 eat it. The carapace is broken into small pieces and dried out in an olla, and this yields a green oil. The shell is nearly one-half inch thick and filled with minute cells which carry oil. This oil is evidently a provision of nature to prevent barnacles and marine growths from attaching to the shell. This oil is poured into a previously cleaned section of intestine, fastened at one end, and then is bottled, ready for transportation or use.

The skin of the flippers is used for sandals. The broken pieces of carapace are also used for firing ollas. The shells are used for windbreaks, for receptacles for transporting household things on women's heads, and possibly for other needs. The stomachs are stretched, probably with sand, and when dried are used for transporting water, the same as we use a canteen.

185 The Seris are always improvident. They raise no cattle. They plant
261 nothing and the only crops they raise are children and dogs. They store no food away, eat when there is plenty, go hungry when there is
[231] nothing to eat. When they will eat raw turtle meat like animals, their
[234] taste is not refined. This is evidenced when they will eat a horse or
[262] burro dead, several days---scrape off the maggots to get a chance at it.